

Graphics Cards



Modern gaming can leave you giddy with excitement – but do you have to pay a fortune for the graphics card to make it possible? We review 16 cards that promise exhilarating games performance without the shocking prices

Today's 3D games look better than ever before, with realistic graphics that would have been impossible to achieve a few years ago. Because of the constant improvement in graphics, users with older graphics cards may find they are unable to play new games. But while the very latest graphics cards are amazingly powerful, they are also quite expensive at over £300, placing them out of reach of most computer owners.

What most users want is a card that lets them play the latest games, and those that are due for release soon, without breaking the bank. This month we've tested 16 reasonably priced graphics cards, costing between £73 and £157 including VAT. Eight of these are designed for older motherboards with an AGP 8x slot, and eight for newer computers that support PCI Express x16. We'll show you which provide the most gaming for your money.



CHOOSING A... GRAPHICS CARD

Before you choose a new graphics card, you need to find out which type of graphics bus your motherboard has. Until around a year ago, most graphics cards connected to the motherboard through an AGP 8x slot. However, more modern motherboards use a PCI Express x16 slot. If you're not sure which kind of graphics card you are upgrading, measure its connector. PCI Express x16 cards have a connector approximately 85mm long, with a notch after the first 10mm. The connector on an AGP 8x card is approximately 70mm long, usually with a notch after 40mm.

IN THE PIPELINE

Each graphics card uses a 3D processor chip and onboard memory. You can gauge the power of a 3D processor approximately by considering its clock speed and the number of pixel pipelines it has. As with a computer processor, the 3D processor's speed in megahertz shows how many million times

per second the chip operates. The number of pixel pipelines affects how much information it processes during each of these operations. In general, more pixel pipelines and a faster clock speed mean a more powerful 3D processor. Cards that use nVidia graphics processors have a slight advantage over their rivals, as they support the new Shader Model 3.0 standard. This allows developers to create more complicated visual effects in games.

Onboard graphics memory enables the card to store textures and access them rapidly without having to communicate with the PC's other components. Having more onboard memory can increase performance, but its effect varies depending on the game being run.

VIEW TO A THRILL

When considering how powerful a graphics card you need, remember to take your screen into account. Most cards we tested can play modern games at an acceptable frame rate at a resolution of 1,024x768 pixels, but higher screen resolutions are more taxing. If you have a 17" LCD, games look their best at the native resolution of 1,280x1,024 pixels. This requires a powerful graphics processor.

Buying a more powerful card has other advantages, too. Powerful graphics processors can apply techniques such as anti-aliasing to remove jagged edges from objects and produce a more lifelike image. To judge how well each card can handle higher resolutions and anti-aliasing, see our game benchmarks on page 182. We ran our Doom 3 and Far Cry tests twice: once at 1,024x768 with no filtering and once at 1,280x1,024 with 4x anti-aliasing and higher image quality.

Not everyone wants to play games through a computer monitor. Gaming on a large LCD screen or a projector can be quite an experience, so if you are lucky enough to have a large screen, you should make sure your graphics card has the necessary video outputs to connect to it. All the cards in our tests this month have digital DVI, analogue D-sub

and S-video outputs, and most output a composite signal, but only nine can connect to the component inputs found on some TVs and projectors.

CARD GAMES

A decent set of bundled games helps you show off your new graphics card to its full potential. Many of the manufacturers in the group include a couple of full-version games in the box as well as DVD software. MSI has pushed the boat out with three full games, 14 playable game demos and five useful applications.

It's also worth looking for a good warranty. Most manufacturers cover your graphics card for a year or two, but ASUS, Leadtek, PNY, Gainward, Gigabyte and MSI provide excellent three-year warranties.

IN THIS REVIEW

AGP GRAPHICS CARDS

Asus N6600GT TOP
Crucial Radeon 9800 Pro
HIS Radeon X700 Pro ICEQ
Inno3D GeForce 6800
Leadtek WinFast A6600GT TDH
PNY GeForce 6600
Sapphire Radeon X700
Sapphire Radeon X800

PCI EXPRESS GRAPHICS CARDS

ABIT RX700LE-Guru
Asus Extreme N6600GT
Crucial Radeon X600 Pro
Gainward Ultra/1980PCX GeForce 6600GT
Golden Sample
GeCube Radeon X800GT
Gigabyte GeForce 6600
Leadtek WinFast PX6600GT TDH Extreme
MSI WinFast NX6600GT-TD128E



REVIEW AGP GRAPHICS CARD

ASUS
N6600GT TOP

RATING ★★★★★

PRICE £147 inc VAT

SUPPLIER www.techfever.co.ukDETAILS www.asus.com/uk

Asus uses overclocked processors and memory to boost the performance of its TOP graphics cards over that of its standard boards. The N6600GT TOP's core runs at 520MHz rather than the more usual 500MHz for a 6600GT card.

The N6600GT TOP is one of the fastest AGP cards in the group. It gained the second-highest result in 3DMark03, scoring 8,633, and the best 3DMark05 score with 3,601, so it should have no trouble with next year's games. Its performance in our game tests was more varied. It achieved playable scores in all three tests but couldn't match the similarly priced Inno3D and Sapphire X800 for power. This is a good AGP card, but it seems expensive next to the competition.



- ✓ Good performance
- ✗ Relatively expensive

SPECIFICATIONS NVidia GeForce 6600GT, 128MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

CRUCIAL
Radeon 9800 Pro

RATING ★★★★★

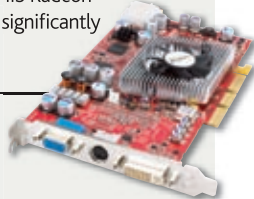
PRICE £98 inc VAT

SUPPLIER Crucial 08000 130330

DETAILS www.crucial.com/uk

The Radeon 9800 Pro processor was the fastest of ATI's previous generation of graphics chips. The price of 9800 Pro cards has only recently dropped below £100. It still measures up well next to the current mid-range competition.

Crucial's Radeon 9800 Pro is the fastest sub-£100 graphics card in the AGP group. It beat the budget competition in all tests bar 3DMark05 and Far Cry, where Sapphire's Radeon X700 had a slight lead. It can run all our test games at high frame rates and decent resolutions, as long as anti-aliasing is turned off, so it is a good choice if you don't want to spend more than £100. For an extra £15, however, the HIS Radeon X700 Pro ICEQ provides significantly more power.



- ✓ Copes well with current games
- ✗ Old technology

SPECIFICATIONS ATI Radeon 9800 Pro, 128MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

HIS
Radeon X700 Pro ICEQ

RATING ★★★★★

PRICE £115 inc VAT

SUPPLIER www.pcnextday.co.ukDETAILS www.hisdigital.com

Most graphics cards can be overclocked with a bit of tweaking, but it's usually a fiddly process and can damage the card. HIS has simplified the process by including a large Turbo button in its software that automatically overclocks the card to its stable maximum. The card has a huge heat sink to keep the processor cool at high speeds, so make sure you have room in your PC case.

When the card is in normal mode, its performance is better than that of the standard X700, but in Turbo mode it rivals the 6600GT-based cards. Its performance in our Ultra-quality Far Cry test was bettered only by Inno3D's 6800 and Sapphire's X800. This is the fastest X700-based card available and is very good value.



- ✓ Very fast in Turbo mode
- ✗ Huge heat sink

SPECIFICATIONS ATI Radeon X700 Pro, 256MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

INNO3D
GeForce 6800

RATING ★★★★★

PRICE £141 inc VAT

SUPPLIER www.pcnextday.co.ukDETAILS www.inno3d.com

NVidia's GeForce 6800 processor runs at a slower clock speed than the 6600GT but has 12 pixel pipelines instead of eight. This allows it to process more information per cycle, giving it a slight performance advantage over the GeForce 6600GT-based AGP cards.

Inno3D's GeForce 6800 is one of the fastest AGP cards in this test. Its score of 9,261 in 3DMark03 was the best in the group, and it was also the fastest AGP card in both Doom 3 benchmarks. It ran our standard Doom 3 test at an impressive 84.9fps. Sapphire's more expensive X800 card was significantly faster in Chaos Theory. However, the 6800 is compatible with Shader Model 3.0 and is slightly cheaper.



- ✓ Superb performance
- ✗ Bettered by the X800 in some tests

SPECIFICATIONS NVidia GeForce 6800, 128MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

LEADTEK
WinFast A6600GT TDH

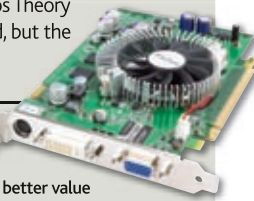
RATING ★★★★★

PRICE £124 inc VAT

SUPPLIER www.cclonline.comDETAILS www.leadtek.de

Like the Asus N6600GT TOP, the A6600GT TDH uses nVidia's GeForce 6600GT processor. It's slightly slower than the Asus card, running at 500MHz rather than 520, but it's also significantly cheaper.

The WinFast A6600GT performed well in our tests. It managed a particularly impressive 79fps in Doom 3, dropping to just 20.8fps with anti-aliasing turned on. However, it faces competition from the cheaper HIS Radeon X700 Pro ICEQ. In Turbo mode, the X700 ran our Ultra-quality Far Cry test at 34.1fps, compared to the A6600GT's 27.5fps. Similarly, the A6600GT trailed behind the HIS card in our Chaos Theory test. Both cards are good, but the HIS is better value.



- ✓ Good overall performance
- ✗ HIS X700 Pro ICEQ is better value

SPECIFICATIONS NVidia GeForce 6600GT, 128MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

PNY
GeForce 6600

RATING ★★★★★

PRICE £73 inc VAT

SUPPLIER www.inmac.co.ukDETAILS www.pny.com

The nVidia GeForce 6600 chip has the same number of pipelines as the 6600GT but a slower clock speed. PNY's GeForce 6600 is the cheapest card in the group, but its performance is not nearly good enough for serious gaming.

The GeForce 6600 was the slowest card in almost all our tests. It produced playable frame rates only in the least demanding of our benchmarks, running Doom 3 at 34fps and Far Cry at 30.4fps. It was the only AGP graphics card that couldn't run our Chaos Theory benchmark at an acceptable speed, producing a jerky 17.9fps. The far superior Sapphire X700 card costs just £4 more, so there's little reason to recommend this.



- ✓ Cheap
- ✗ Slow

SPECIFICATIONS NVidia GeForce 6600, 128MB RAM, AGP 8x



REVIEW AGP GRAPHICS CARD

SAPPHIRE Radeon X700

RATING ★★★★★

PRICE £76 inc VAT

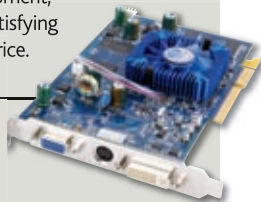
SUPPLIER www.microdirect.co.ukDETAILS www.sapphiretech.com

The X700 is ATI's mid-range rival to the nVidia GeForce 6600. Sapphire's Radeon X700 is one of the cheapest cards here, and provides decent gaming performance.

Its results in our tests were far better than those of the similarly priced PNY GeForce 6600. It ran our Doom 3 test at 39.5fps and its score of 50.3fps in Far Cry is better than that of the pricier Crucial 9800 Pro. But its score of 2,657 in 3DMark05 suggests it will not cope so well with future games. If you want a card that will play new releases for some time, you'll need to spend a little more. For the moment, though, this provides satisfying performance at a low price.

Good value

Will date quickly



SPECIFICATIONS ATI Radeon X700, 256MB RAM, AGP 8x

REVIEW AGP GRAPHICS CARD

SAPPHIRE Radeon X800

RATING ★★★★★

PRICE £157 inc VAT

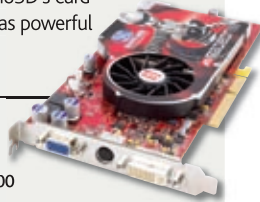
SUPPLIER www.microdirect.co.ukDETAILS www.sapphiretech.com

Sapphire's Radeon X800 is the most expensive card here. It performs well, but it was beaten by the cheaper Inno3D GeForce 6800 in most tests.

The Sapphire X800's scores of 7,169 in 3DMark03 and 3,318 in 3DMark05 are not as high up the table as you'd expect of the priciest card. Both the Inno3D GeForce 6800 and Asus N6600GT TOP did better. It couldn't match the 6800 in either of the Doom 3 tests, but it achieved the best scores for an AGP card in Far Cry and Chaos Theory. It ran our Ultra-quality Far Cry test with anti-aliasing on at an impressive 39.2fps. It's fast, but Inno3D's card is cheaper and at least as powerful in most games.

Powerful; video inputs

Inno3D GeForce 6800 is better value



SPECIFICATIONS ATI Radeon X800, 256MB RAM, AGP 8x

LABS VERDICT AGP CARDS

Most of the cards in the AGP group ran our test games at smooth frame rates and high detail settings, but only a few are powerful enough to handle advanced features such as anti-aliasing and stand a good chance of running games released in a year's time. For those on a tight budget, Sapphire's Radeon X700 provides enough power for current games at a low price. If you can stretch to £115, the HIS Radeon X700 Pro ICEQ is great value, with performance to rival that of the pricier nVidia 6600GT chipset.

If you want a very powerful graphics card, though, you'll need to spend closer to £150. Inno3D's GeForce 6800 runs today's games at impressive speeds, beating every other card in our 3DMark03 test. It enables you to run today's games in all their glory, and should cope well with any games that come out in the next couple of years. It wins our Best Buy award.

INNO3D GeForce 6800



MANUFACTURER	ASUS	CRUCIAL	HIS	INNO3D	LEADTEK	PNY	SAPPHIRE	SAPPHIRE
Model	N6600GT TOP	Radeon 9800 Pro	Radeon X700 Pro ICEQ	GeForce 6800	WinFast A6600GT TDH	GeForce 6600	Radeon X700	Radeon X800
Rating	★★★★	★★★★★	★★★★★	★★★★★	★★★★	★	★★★★	★★★★
Interface	AGP 8x	AGP 8x	AGP 8x	AGP 8x	AGP 8x	AGP 8x	AGP 8x	AGP 8x
Processor	GeForce 6600GT	Radeon 9800 Pro	Radeon X700 Pro	GeForce 6800	GeForce 6600GT	GeForce 6600	Radeon X700	Radeon X800
Memory	128MB	128MB	256MB	128MB	128MB	128MB	256MB	256MB
Memory interface	128-bit DDR3	256-bit DDR	128-bit DDR3	256-bit DDR	128-bit DDR3	128-bit DDR	128-bit DDR	256-bit DDR3
GPU speed	520MHz	380MHz	425MHz	325MHz	500MHz	300MHz	400MHz	400MHz
Memory speed	550MHz	350MHz	432MHz	350MHz	450MHz	250MHz	250MHz	350MHz
FEATURES								
Pixel pipelines	8	8	8	12	8	8	8	12
Vertex pipelines	3	4	6	5	3	3	6	6
Pixel Shader version	3	2	2	3	3	3	2	2
Anti-aliasing	8x	6x	6x	8x	8x	8x	6x	6x
Anisotropic filtering	16x	16x	16x	16x	16x	16x	16x	16x
CONNECTORS								
DVI outputs	1	1	1	1	1	1	1	1
D-sub outputs (analogue)	1	1	1	1	1	1	1	1
S-video output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S-video input	No	No	No	No	No	No	No	Yes
Composite output	Yes	Yes	Yes	Yes	Requires adaptor	Yes	Yes	Yes
Composite input	No	No	No	No	No	No	No	Yes
Component output	No	No	Yes	No	Yes	No	Yes	Yes
Power leads required	1	1	1	1	1	1	1	1
EXTRAS								
Accessories	DVI to D-sub converter, S-video to composite converter	DVI to D-sub converter, S-video to composite converter, S-video lead, composite lead	DVI to D-sub converter, S-video lead, composite lead, component lead	DVI to D-sub converter, S-video to composite converter	DVI to D-sub converter, S-video/component lead	DVI to D-sub converter, S-video to composite converter, S-video lead	DVI to D-sub converter, S-video lead, composite lead, composite adaptor, component lead	DVI to D-sub converter, S-video lead, composite lead, component lead, component/S-video video in/out lead
Bundled software	Joint Operations, Xpand Rally, Asus MediaShow SE 2.0	CyberLink PowerDVD 6	None	Colin McRae Rally 2004, 3DMark05, InterVideo WinDVD 5, InterVideo WinDVD Creator 2	Splinter Cell: Pandora Tomorrow, Prince of Persia: Warrior Within	None	Prince of Persia: The Sands of Time, CyberLink PowerDVD 5	Prince of Persia: The Sands of Time, CyberLink PowerDirector 3, CyberLink PowerDVD 5
BUYING INFORMATION								
Warranty	Three years RTB	One year RTB	Two years RTB	One year RTB	Three years RTB	Three years RTB	Two years RTB	Two years RTB
Price inc VAT	£147	£98	£115	£141	£124	£73	£76	£157
Supplier	www.techfever.co.uk	Crucial 08000 130330	www.pcnextday.co.uk	www.pcnextday.co.uk	www.cclonline.com	www.inmac.co.uk	www.microdirect.co.uk	www.microdirect.co.uk
Details	www.asus.com/uk	www.crucial.com/uk	www.hisdigital.com	www.inno3d.com	www.leadtek.de	www.pny.com	www.sapphiretech.com	www.sapphiretech.com
Part code	N6600GT/TOP/TD/128	CTV9800PRO128MB.A001	RX700P-AGP256ICEQ	I-6800-F3G3S	A6600GT TDH	B-G60600ABD11LPB	X700 256M DDR AGP VGA VO/DVI-I	X800 AGP 256MB V/D/VIVO



REVIEW PCI EXPRESS GRAPHICS CARD

ABIT
RX700LE-Guru

RATING ★★★★★

PRICE £84 inc VAT

SUPPLIER www.scan.co.ukDETAILS www.abit.com.tw

Like the HIS Radeon X700 Pro ICEQ, ABIT's Radeon X700LE-Guru is designed to be overclocked easily. Changing a jumper setting on the card puts it into Turbo mode. This increases its memory and processor clock speeds by 25MHz, and causes a number of LEDs on the card to flash annoyingly.

Even in Turbo mode, though, the RX700LE-Guru isn't particularly powerful. It produced playable frame rates in all our lower-quality game tests. However, Gigabyte's GeForce 6600 achieved similar performance in all our tests plus a far greater speed in Doom 3. Gigabyte's card also has the advantage of a silent heat sink. This is an average budget card for playing today's games.

✓ Easy to overclock

✗ Modest performance



SPECIFICATIONS ATI Radeon X700, 256MB RAM, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

ASUS
Extreme N6600GT

RATING ★★★★★

PRICE £132 inc VAT

SUPPLIER www.scan.co.ukDETAILS www.asus.com/uk

The ASUS Extreme N6600GT runs at a lower clock speed than the overclocked N6600GT TOP, but it's still a powerful graphics card. It can be used with another identical card in a scalable link interface (SLI) system.

The Extreme N6600GT performed well in all our tests, but it's not as fast as the Gainward and Leadtek cards, both of which run at a higher clock speed. Its score of 82.9fps in our standard Doom 3 test is impressive, but it was outperformed by the cheaper GeCube X800GT card in most of our benchmarks. If you want to build an SLI system, MSI's 6600GT is better value. If you want a single graphics card, the X800GT is clearly superior.

✓ Good performance

✗ Fairly expensive



SPECIFICATIONS NVidia GeForce 6600GT, 128MB, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

CRUCIAL
Radeon X600 Pro

RATING ★★★★★

PRICE £74 inc VAT

SUPPLIER Crucial 08000 130330

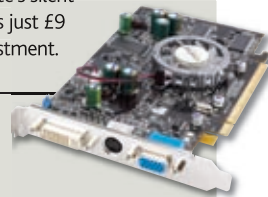
DETAILS www.crucial.com/uk

Crucial's Radeon X600 Pro processor runs at the same clock speed as ABIT's X700LE, but it has only four pixel pipelines compared with the X700LE's eight.

This is the cheapest card in the PCI Express group, but its performance in our benchmarks was disappointing. Its score of 1,360 in 3DMark05 was the worst in both the PCI Express and AGP groups. Far Cry was the only game it could run at an acceptable frame rate. Its Doom 3 performance was particularly poor, managing a sluggish 23.8fps at a resolution of 1,024x768 with no anti-aliasing. It can run older games, but considering that Gigabyte's silent GeForce 6600 card costs just £9 more, this is a poor investment.

✓ Cheap

✗ Very slow



SPECIFICATIONS ATI Radeon X600 Pro, 256MB, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

GAINWARD
Ultra/1980PCX GeForce
6600GT Golden Sample

RATING ★★★★★

PRICE £147 inc VAT

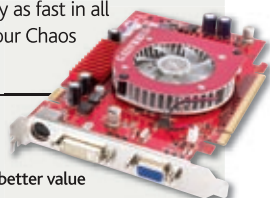
SUPPLIER www.microdirect.co.ukDETAILS www.gainward.de

Gainward's Golden Sample cards use memory selected to run at high clock speeds. The Ultra/1980PCX runs at a higher clock speed than the GeForce 6600GT cards produced by Asus and MSI, but it's slightly slower than the Leadtek card.

The Ultra/1980PCX is very powerful. Its score of 9,127 in 3DMark03 was the second highest, and it topped our 3DMark05 table with 4,150. It came top in both Doom 3 benchmarks, just beating Leadtek's 6600GT. Unfortunately, it's also expensive. It costs £41 more than GeCube's X800GT, which is nearly as fast in all our tests and faster in our Chaos Theory benchmark.

✓ Very fast

✗ GeCube X800GT is better value



SPECIFICATIONS NVidia GeForce 6600GT, 256MB RAM, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

GECUBE
Radeon X800GT

RATING ★★★★★

PRICE £106 inc VAT

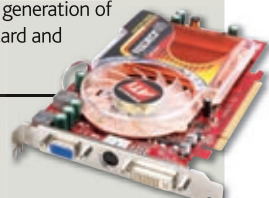
SUPPLIER www.lowestonweb.comDETAILS www.gecube.com

ATI's Radeon X800GT is a cheaper version of the Radeon X800. Its processor and memory run at higher clock speeds than those of the X800, but it has eight pixel pipelines instead of 12.

This card provides an astonishing level of performance for its modest price. It produced the second-highest score in 3DMark05 and its 46.8fps in our Ultra-quality Far Cry benchmark was unrivalled. It couldn't match the 6600GT cards from Leadtek and Gainward in the Doom 3 tests, but it was the fastest in the Chaos Theory test, producing a frame rate of 61.4fps. GeCube's X800GT plays all current games perfectly and will cope with the next generation of 3D titles. An excellent card and terrific value.

✓ Great performance and value

✗ Not much software



SPECIFICATIONS ATI Radeon X800GT, 256MB RAM, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

GIGABYTE
GeForce 6600

RATING ★★★★★

PRICE £83 inc VAT

SUPPLIER www.microdirect.co.ukDETAILS www.giga-byte.com

Most graphics cards in this group use a heat sink and fan to keep their processor cool. For those who prefer a quieter PC, Gigabyte has fitted its GeForce 6600 with a large heat sink that operates without a fan, which makes it completely silent.

This card runs at a higher clock speed than the PNY GeForce 6600 in the AGP group, and performed far better in our tests. Although it couldn't match the performance of cards that use the 6600GT chip, it produced a smooth 59.5fps in our standard Doom 3 test and 54fps in our High-quality Far Cry test. If you want something cheap, quiet and fairly quick for occasional gaming, this is a fine choice.

✓ Silent; cheap

✗ Not particularly quick



SPECIFICATIONS NVidia GeForce 6600, 256MB RAM, PCI Express x16



REVIEW PCI EXPRESS GRAPHICS CARD

LEADTEK
WinFast PX6600GT TDH
Extreme

RATING ★★☆☆

PRICE £142 inc VAT

SUPPLIER www.cclonline.comDETAILS www.leadtek.de

Leadtek's PX6600GT Extreme has a higher clock speed than Gainward's Ultra/1980PCX but half the memory, and its performance is similar.

The Leadtek is powerful and came near the top in all our tests. It did particularly well in Doom 3, and is one of the few cards here that can cope with 4x anti-aliasing. It ran our Ultra-quality Doom 3 test at 27.8fps. Like the Gainward, it suffers in comparison with GeCube's X800GT: it's more expensive, but its performance is similar. Gainward's Ultra/1980PCX is slightly faster, but GeCube's X800GT is better value.



✓ Very good performance

✗ Fairly expensive

SPECIFICATIONS NVidia GeForce 6600GT, 128MB RAM, PCI Express x16

REVIEW PCI EXPRESS GRAPHICS CARD

MSI
WinFast NX6600GT-TD128E

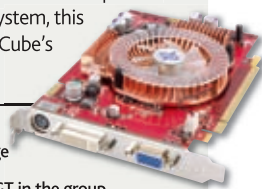
RATING ★★☆☆

PRICE £124 inc VAT

SUPPLIER www.savastore.comDETAILS www.msi.com.tw

Like the Asus Extreme N6600GT, MSI's card runs at 500MHz, the standard speed for nVidia 6600GT cards. Its performance is similar to that of the Asus, but it has a better software bundle.

The MSI performed as well as we expected. It produced decent scores in our tests and will cope well with current games at high resolutions and detail levels. It's good value for a GeForce 6600GT, but GeCube's X800GT did better in all tests but Doom 3. If you want an inexpensive 6600GT card for an SLI system, this is a fine choice; if not, GeCube's X800GT is better value.



✓ Good performance; great software package

✗ Not the fastest 6600GT in the group

SPECIFICATIONS NVidia GeForce 6600GT, 128MB RAM, PCI Express x16

LABS VERDICT
PCI EXPRESS

If you have an SLI-compatible motherboard with two PCI Express x16 slots, it makes sense to buy an SLI-compatible card. This will enable you to upgrade to a dual-card system in the future. MSI's WinFast NX6600GT is well priced and powerful enough for most users. Alternatively, Gainward's 6600GT Golden Sample provides table-topping performance for just £20 more.

If you don't have an SLI motherboard, two cards stand out. Gigabyte's GeForce 6600 is fast and silent, making it ideal for a media centre PC. However, the bargain in the group is GeCube's Radeon X800GT. For just over £100, it provides performance to rival that of cards costing almost £50 more and should satisfy avid gamers for some time. It wins our Best Buy award.

GECUBE
Radeon
X800GTBEST BUY
COMPUTER SHOPPER

MANUFACTURER	ABIT	ASUS	CRUCIAL	GAINWARD	GECUBE	GIGABYTE	LEADTEK	MSI
Model	RX700LE-Guru	Extreme N6600GT	Radeon X600 Pro	Ultra/1980PCX GeForce 6600GT Golden Sample	Radeon X800GT	GeForce 6600	WinFast PX6600GT TDH Extreme	WinFast NX6600GT-TD128E
Rating	★★★	★★★	★	★★★★	★★★★★	★★★★	★★★	★★★★
Interface	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16
Processor	Radeon X700	GeForce 6600GT	Radeon X600 Pro	GeForce 6600GT	Radeon X800GT	GeForce 6600	GeForce 6600GT	GeForce 6600GT
Memory	256MB	128MB	256MB	256MB	256MB	256MB	128MB	128MB
Memory interface	128-bit DDR	128-bit DDR3	128-bit DDR	128-bit DDR3	256-bit DDR3	128-bit DDR	128-bit DDR3	128-bit DDR3
GPU speed	400MHz	500MHz	400MHz	540MHz	500MHz	450MHz	550MHz	500MHz
Memory speed	250MHz	500MHz	290MHz	525MHz	500MHz	500MHz	560MHz	500MHz
FEATURES								
Pixel pipelines	8	8	4	8	8	8	8	8
Vertex pipelines	6	3	2	3	6	3	3	3
Pixel Shader version	2	3	2	3	2	3	3	3
Anti-aliasing	6x	8x	6x	8x	6x	8x	8x	8x
Anisotropic filtering	16x	16x	16x	16x	16x	16x	16x	16x
CONNECTORS								
DVI outputs	1	1	1	1	1	1	1	1
D-sub outputs (analogue)	1	1	1	1	1	1	1	1
S-video output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S-video input	No	No	No	No	No	No	No	No
Composite output	Requires adaptor	Yes	Yes	Yes	Yes	Requires adaptor	Requires adaptor	Yes
Composite input	No	No	No	No	No	No	No	No
Component output	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Power leads required	None	None	None	None	None	None	None	None
EXTRAS								
Accessories	DVI to D-sub converter, S-video/component lead	DVI to D-sub converter, S-video to composite converter	DVI to D-sub converter, S-video to composite converter	DVI to D-sub converter, S-video/composite/component lead	DVI to D-sub converter, S-video/composite lead, component lead	DVI to D-sub converter, S-video/component lead	DVI to D-sub converter, S-video/component lead	DVI to D-sub converter, S-video lead, S-video/component/composite lead
Bundled software	ABIT OC Guru overclocking software	Joint Operations, ASUS MediaShow SE 2.0	CyberLink PowerDVD 6	InterVideo WinDVD 5	Counter-Strike: Condition Zero, CyberLink PowerDVD 5	CyberLink PowerDVD 5	Splinter Cell: Pandora Tomorrow, Prince of Persia: Warrior Within	XIII, Prince of Persia: The Sands of Time, URU, 14-in-1 games collection, MSI Media Center Deluxe II, FarStone VirtualDrive 7, FarStone Restore!T1 3, InterVideo WinDVD 5.1, MSI 3D Desktop
BUYING INFORMATION								
Warranty	Two years RTB	Three years RTB	One year RTB	Three years RTB	Two years RTB	Three years RTB	Three years RTB	Three years RTB
Price inc VAT	£84	£132	£74	£147	£106	£83	£142	£124
Supplier	www.scan.co.uk	www.scan.co.uk	Crucial 08000 130330	www.microdirect.co.uk	www.lowestonweb.com	www.microdirect.co.uk	www.cclonline.com	www.savastore.com
Details	www.abit.com.tw	www.asus.com/uk	www.crucial.com/uk	www.gainward.de	www.gecube.com	www.giga-byte.com	www.leadtek.de	www.msi.com.tw
Part code	RX700LE-Guru	EN6600GT/TD/128	CTVX600P256MB.A001	47 1846200-6848	GC-RX800GT3-D3	GV-NX66256DP	PX6600GT TDH Extreme	NX6600GT-TD128E

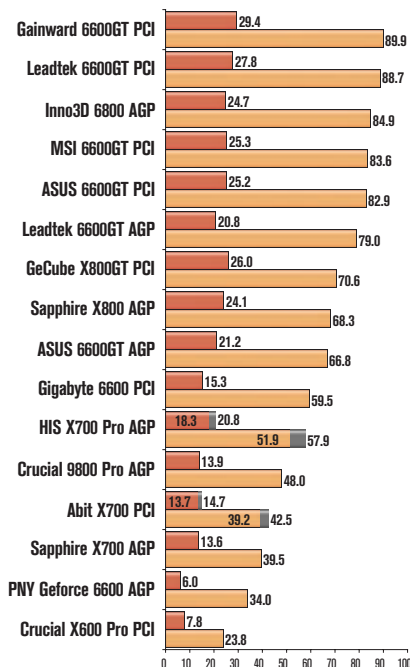


BENCHMARKS

1,280x1,024
resolution, 4xAA1,024x768
resolutionWith Turbo
mode on

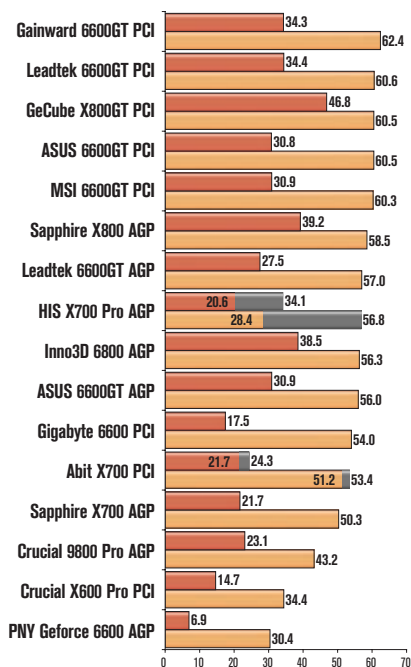
3D Performance Games

Doom 3



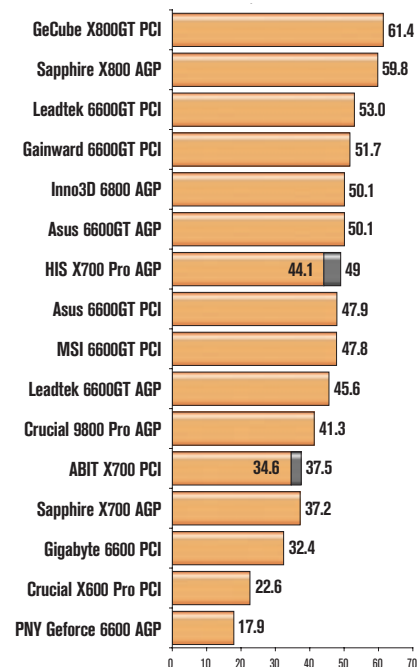
SETTINGS 1,024x768, High quality/1,280x1,024, Ultra quality and 4x anti-aliasing
WEB www.doom3.com

Far Cry



SETTINGS 1,024x768, High quality/1,280x1,024, Ultra quality and 4x anti-aliasing
WEB www.ubi.com

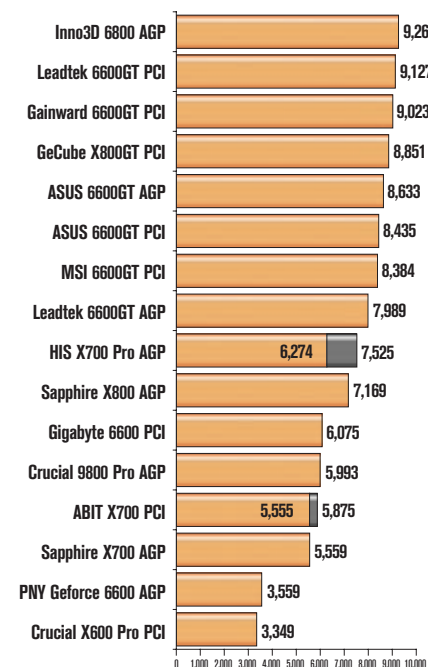
Chaos Theory



SETTINGS 1,024x768 resolution, High quality textures, Shader Model 1.1
WEB www.splintercell.com

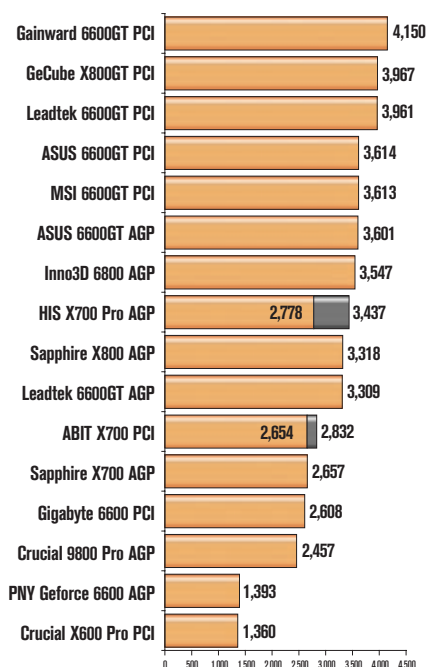
3D Performance Benchmarks

3DMark03



SETTINGS 1,024x768 resolution, 32-bit colour, default settings
WEB www.futuremark.com

3DMark05



SETTINGS 1,024x768 resolution, 32-bit colour, default settings
WEB www.futuremark.com

HOW WE TESTED

We ran a total of seven benchmark tests on each of the graphics cards in this group. All the benchmarks were carried out in fast PCs built using Athlon 64 4000+ processors. This ensures that the graphics performance was limited only by the graphics card's capabilities rather than those of the PC itself.

3DMark03 is an industry-standard test for measuring graphics performance. We currently use it when testing graphics cards, notebook computers and desktop PCs. It gives a good indication of how well a card will handle current games and those that will be released in the near future. We also ran the more challenging 3DMark05 benchmark. This measures how well cards will cope with games arriving over the next two years.

We also tested each card with a selection of graphically challenging games. We ran Doom 3, Far Cry and Splinter Cell: Chaos Theory at a resolution of 1,024x768 in high detail. To push the cards further we ran a second set of tests at a resolution of 1,280x1,024 with 4x anti-aliasing enabled and detail settings at maximum. Cards that perform well in these more taxing tests would be ideal for those who want to play today's games without having to compromise on visual quality. **CS**